2006-08 ENGINE

Cooling System (K20Z3) - Civic (All Except Si)

COMPONENT LOCATION INDEX

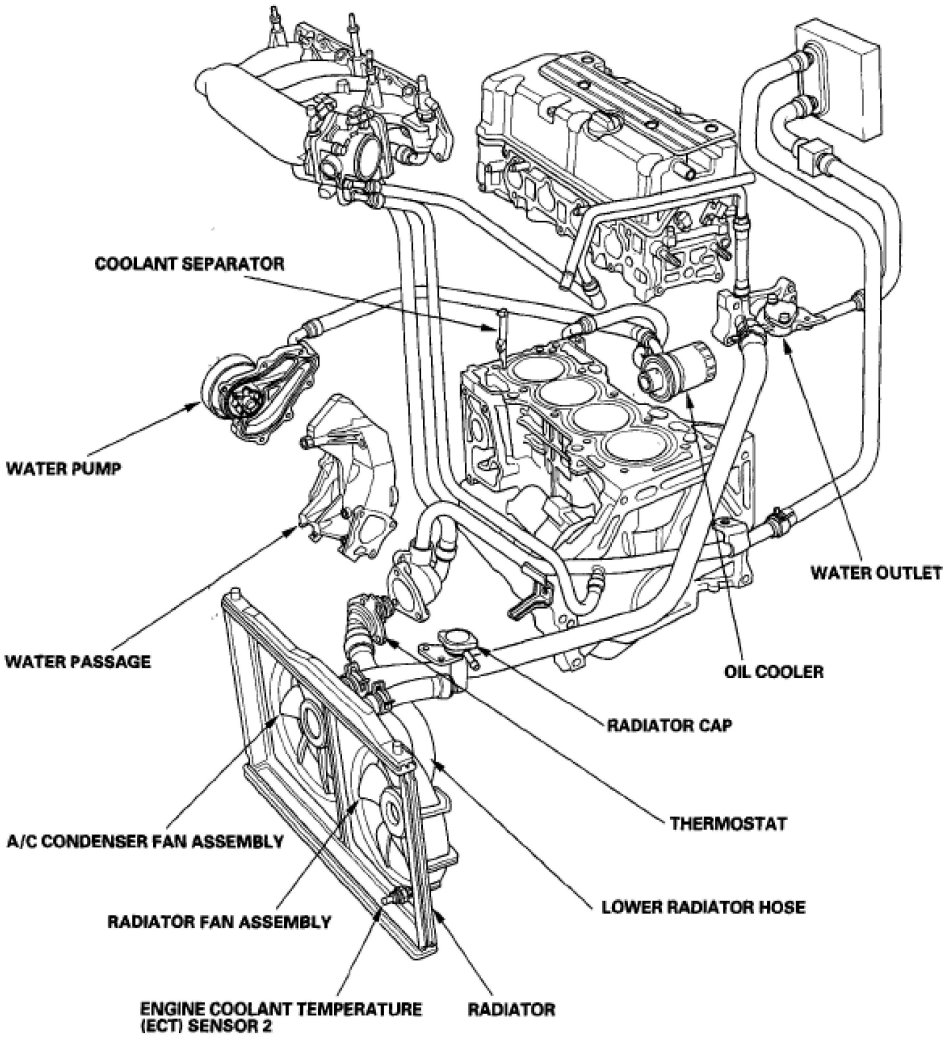

Fig. 1: Identifying Cooling System Components
Courtesy of AMERICAN HONDA MOTOR CO., INC.

RADIATOR CAP TEST

1. Remove the radiator cap (A). Wet the seal with engine coolant, then install it on a commercially available pressure tester (B).

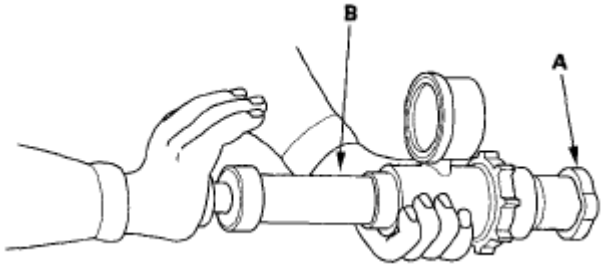

Fig. 2: Installing Cap On Pressure Tester
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Apply a pressure of 93-123 kPa (0.95-1.25 kgf/cm^2 , 14-18 psi).
3. Check for a drop in pressure.
4. If the pressure drops, replace the cap.

RADIATOR TEST

1. Wait until the engine is cool, then carefully remove the radiator cap, and fill the radiator with engine coolant to the top of the filler neck.
2. Attach a commercially available pressure tester (A) to the radiator, and apply a pressure of 93-123 kPa (0.95-1.25 kgf/cm^2 , 14-18 psi).

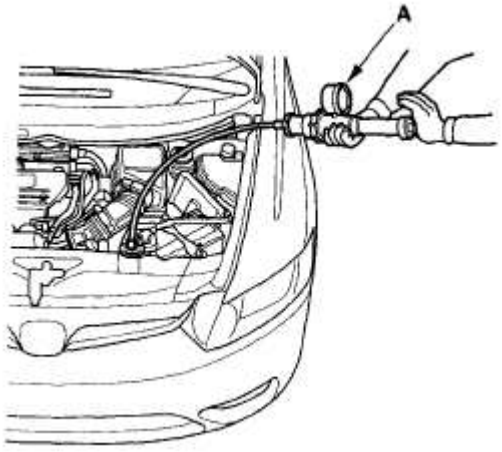

Fig. 3: Attaching Pressure Tester To Radiator
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Inspect for engine coolant leaks, and a drop in pressure.

4. Remove the tester, then reinstall the radiator cap.
5. Check for engine oil in the coolant and/or coolant in the engine oil.

FAN MOTOR TEST

1. Disconnect the 2P connectors from the radiator fan motor and condenser fan motor.

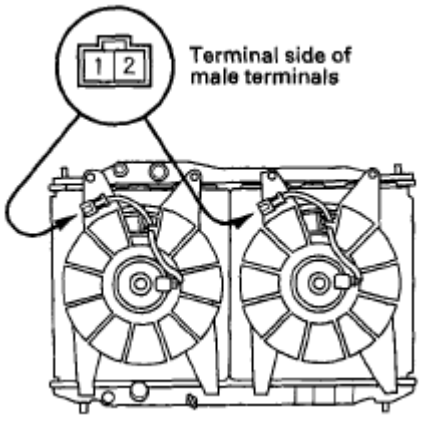

Fig. 4: Identifying 2P Connectors From Radiator Fan Motor And Condenser Fan Motor
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Test the motor by connecting battery power to the terminal No. 2 and ground to the terminal No. 1.
3. If the motor fails to run, or does not run smoothly, replace it.

THERMOSTAT TEST

Replace the thermostat if it is open at room temperature.

To test a closed thermostat:

1. Suspend the thermostat (A) in a container of water. Do not let the thermometer (B) touch the bottom of the hot container.

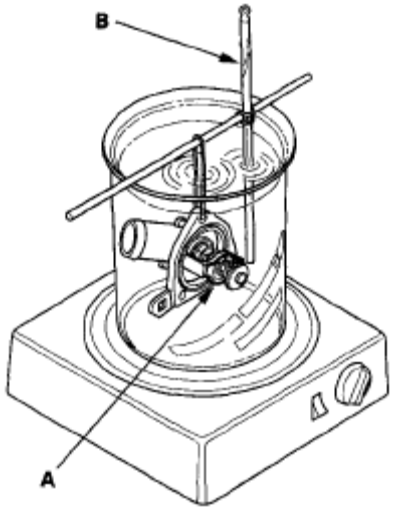

Fig. 5: Identifying Thermostat In Container Of Water
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Heat the water, and check the temperature with a thermometer. Check the temperature when the thermostat first opens, then check the temperature when the thermostat is fully open.
3. Measure the lift height of the thermostat when it is fully open. If the thermostat is not within the specification, replace it.

Standard Thermostat

Lift Height: Above 8.0 mm (0.31 in.)

Starts Opening: 169-176 °F (76-80 °C)

Fully Open: 194 °F (90 °C)

WATER PUMP INSPECTION

1. Remove the drive belt (see **DRIVE BELT INSPECTION**).
2. Turn the water pump pulley counterclockwise. Check that it turns freely. If it doesn't turn smoothly, replace the water pump (see **WATER PUMP INSPECTION**).

NOTE: When you check the water pump, you may see a small

amount of "weeping" from the bleed holes (A). This it is normal.

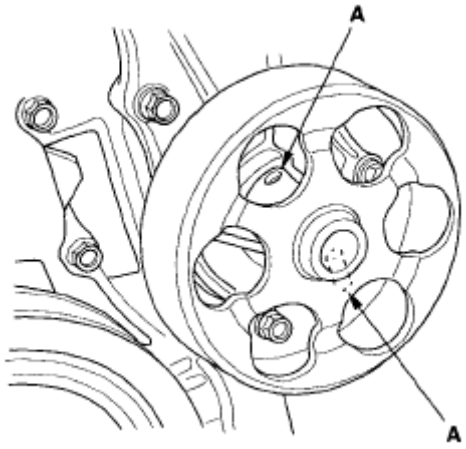

Fig. 6: Identifying Bleed Holes
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the drive belt (see **DRIVE BELT INSPECTION**).

WATER PUMP REPLACEMENT

1. Remove the drive belt (see **DRIVE BELT INSPECTION**).
2. Drain the engine coolant (see **COOLANT CHECK**).
3. Remove the drive belt auto-tensioner pulley (see **DRIVE BELT AUTO-TENSIONER REMOVAL/INSTALLATION**).
4. Remove the crankshaft pulley (see **CRANKSHAFT PULLEY REMOVAL AND INSTALLATION**).
5. Remove the oil cooler joint pipe (A), then remove the seven bolts securing the water pump. Remove the water pump (B).

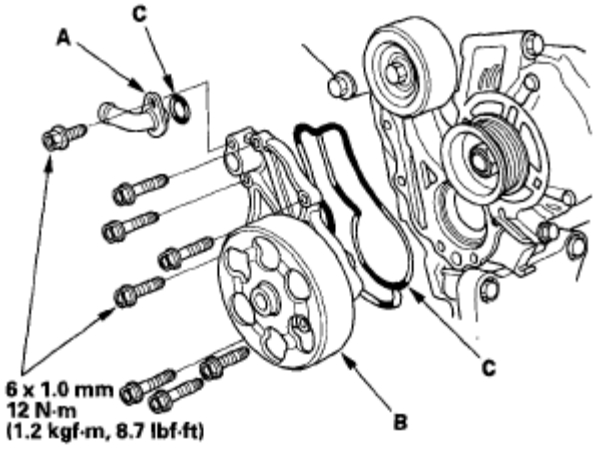

Fig. 7: Identifying Water Pump Components (With Torque Specifications) Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Inspect, and clean the O-ring groove and mating surface with the water passage.
7. Install the water pump with new O-rings (C) in the reverse order of removal.
8. Clean up any spilled engine coolant.
9. Install the drive belt auto-tensioner pulley (see **DRIVE BELT AUTO-TENSIONER REMOVAL/INSTALLATION**).
10. Install the crankshaft pulley (see **INSTALLATION**).
11. Refill the radiator with engine coolant, and bleed the air from the cooling system with the heater valve open (see step 6).

COOLANT CHECK

1. Look at the coolant level in the coolant reservoir. Make sure it is between the MAX mark (A) and MIN mark (B).

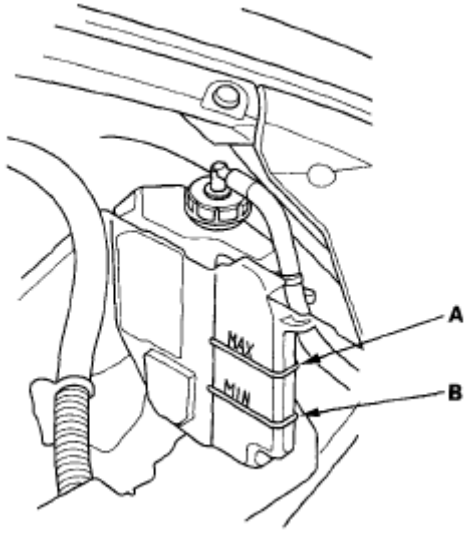

Fig. 8: Identifying MAX Mark And MIN Mark
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. If the coolant level in the coolant reservoir is at or below the MIN mark, add coolant to bring it up to the MAX mark, and inspect the cooling system for leaks.

COOLANT REPLACEMENT

1. Start the engine. Set the heater temperature control dial to maximum heat, then turn off the ignition switch. Make sure the engine and radiator are cool to the touch.
2. Remove the radiator cap.
3. Loosen the drain plug (A), and drain the coolant.

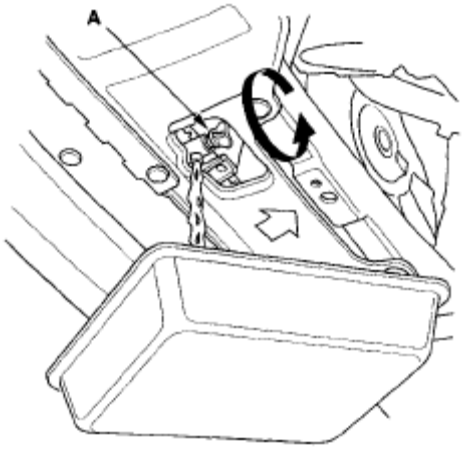

Fig. 9: Loosening Drain Plug
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. After the coolant has drained, tighten the radiator drain plug.
5. Remove the coolant reservoir, and drain the coolant, then reinstall the coolant reservoir.
6. Fill the coolant reservoir to the MAX mark (A) with Honda Long Life Antifreeze/Coolant Type 2 (P/N OL999-9001).

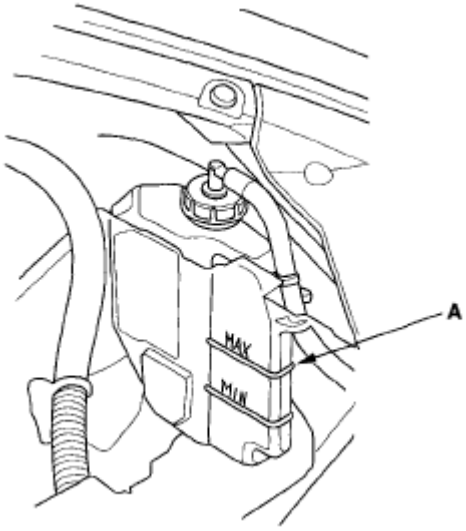

Fig. 10: Identifying MAX Mark
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Pour Honda Long Life Antifreeze/Coolant Type 2 (P/N OL999-9001) into the radiator up to the base of the filler neck.

NOTE:

- **Always use Honda Long Life Antifreeze/Coolant Type 2 (P/N OL999-9001). Using a non-Honda coolant can result in corrosion, causing the cooling system to malfunction or fail.**
- **Honda Long Life Antifreeze/Coolant Type 2 is a mixture of 50 % antifreeze and 50 % water. Do not add water.**

Engine Coolant Capacities (Including the reserve tank capacity of 0.4 L (0.11 US gal))

At Coolant Change: 4.5 L (1.19 US gal)

After Engine Overhaul: 6.8 L (1.80 US gal)

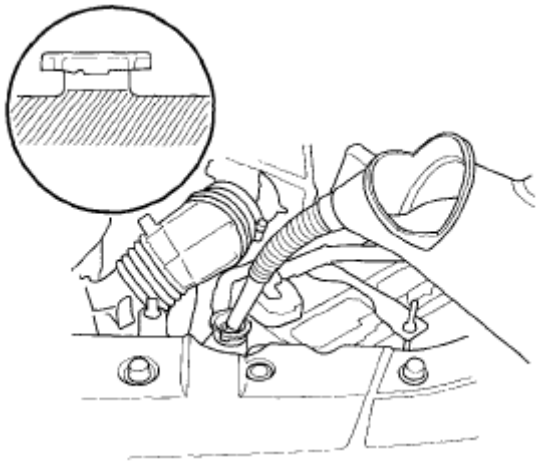

Fig. 11: Identifying Engine Coolant Capacities
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Loosely install the radiator cap.
9. Start the engine, and let it run until it warms up (the radiator fan comes on at least twice).
10. If the maintenance minder indicated to replace the engine coolant, reset the maintenance minder (see **RESETTING THE MAINTENANCE INFORMATION DISPLAY**), then go to step 19. If the maintenance minder did not indicate to replace the engine coolant, go to step 11.

11. Turn the ignition switch to LOCK (0).
12. Connect the HDS to the data link connector (DLC) (see **GENERAL TROUBLESHOOTING INFORMATION**).
13. Turn the ignition switch to ON (II).
14. Make sure the HDS communicates with the vehicle and the ECM. If it doesn't communicate, troubleshoot the DLC circuit (see **DLC CIRCUIT TROUBLESHOOTING**).
15. Select BODY ELECTRICAL with he HDS.
16. Select ADJUSTMENT in the GAUGES MENU with the HDS.
17. Select RESET in the MAINTENANCE MINDER with the HDS.
18. Select MAINTENANCE SUB ITEM 5 RESET with the HDS.
19. Turn off the engine. Check the level in the radiator, and add Honda Long Life Antifreeze/Coolant Type 2, if needed.
20. Put the radiator cap on tightly, then run the engine again, and check for leaks.
21. Clean up any spilled engine coolant.
22. Reset the maintenance information display (see**RESETTING THE MAINTENANCE INFORMATION DISPLAY**).

THERMOSTAT REPLACEMENT

1. Drain the engine coolant (see **COOLANT CHECK**).
2. Remove the splash shield .
3. Remove the lower hose, then remove the thermostat.

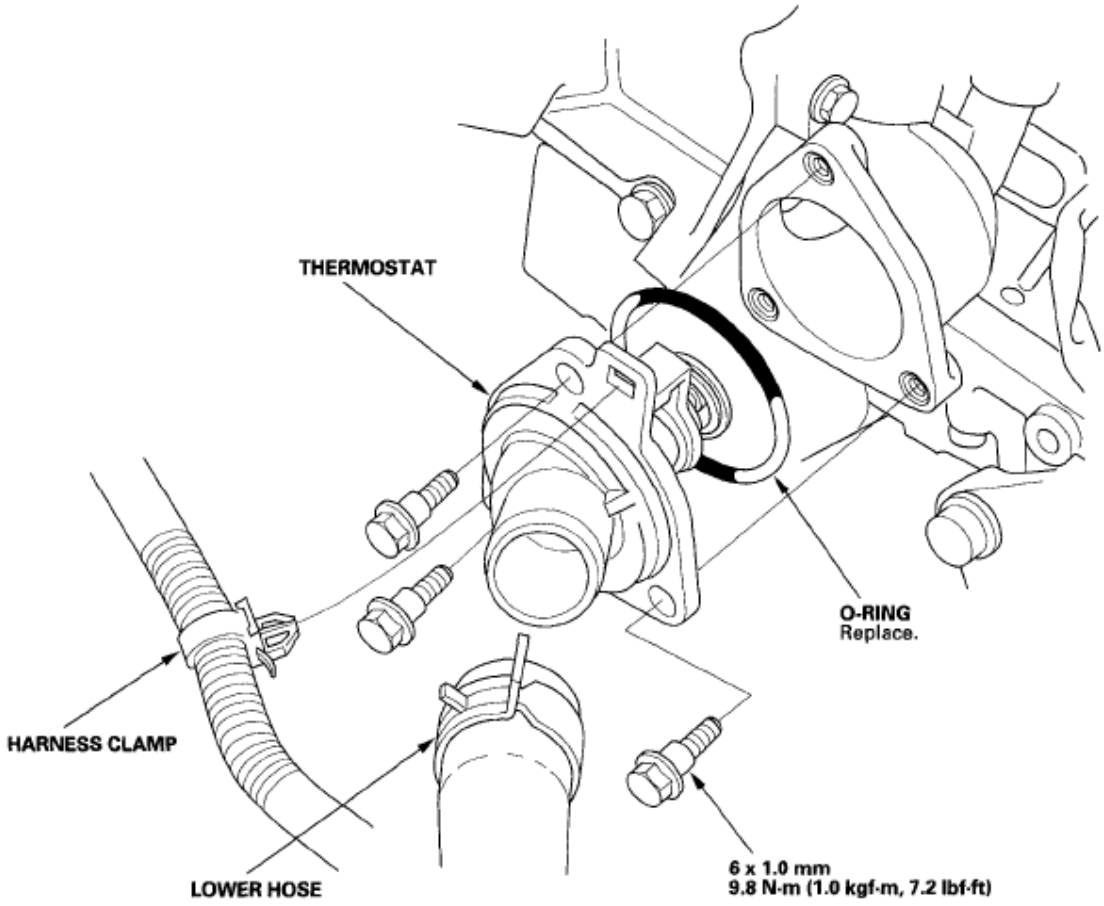

Fig. 12: Identifying Thermostat, Harness Clamp And Lower Hose (With Torque Specifications)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Install the thermostat with a new O-ring, then install the lower hose.
5. Install the splash shield .
6. Refill the radiator with engine coolant, and bleed the air from the cooling system with the heater valve open (see step 6).

WATER PASSAGE REPLACEMENT

1. Drain the engine coolant (see **COOLANT CHECK**).
2. Remove the alternator (see **ALTERNATOR REMOVAL AND INSTALLATION**).
3. Remove the condenser fan shroud assembly.

4. Remove the A/C compressor without disconnecting the A/C hoses (see step 38 on **ENGINE REMOVAL**).
5. Remove the intake manifold (see **REMOVAL**).
6. Remove a bolt (A) securing the connecting pipe.

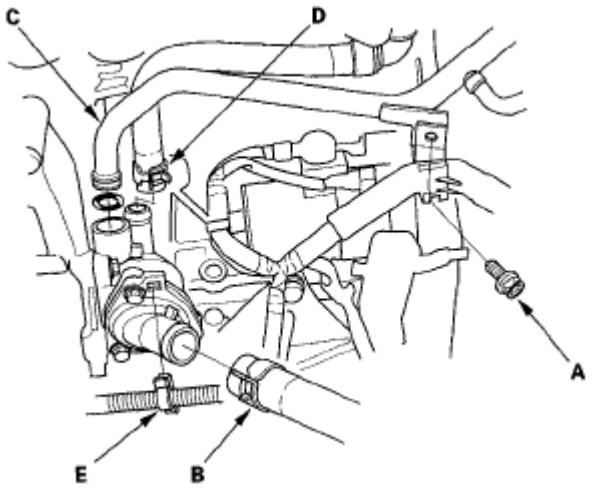

Fig. 13: Identifying Lower Radiator Hose, Connecting Pipe And Harness Clamp
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Remove the lower radiator hose (B), connecting pipe (C), water bypass hose (D), and harness clamp (E).
8. Remove the positive crankcase ventilation (PCV) hose (A), then remove the water passage (B).

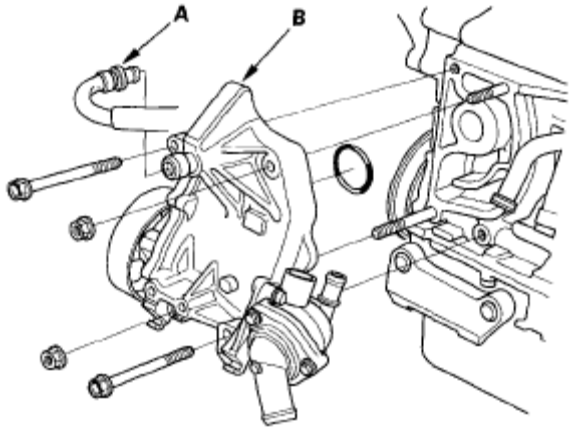

Fig. 14: Identifying Positive Crankcase Ventilation (PCV) Hose And

Water Passage
Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Remove the thermostat housing.

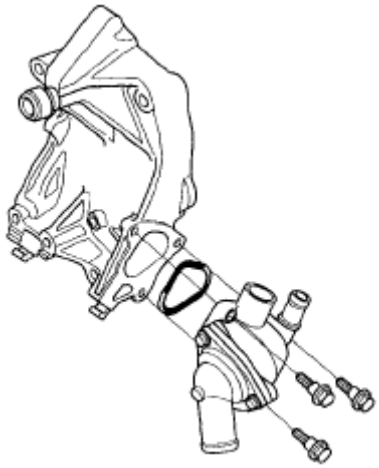

Fig. 15: Identifying Thermostat Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

10. Remove the water pump (see **WATER PUMP INSPECTION**).
11. Install the water pump (see **WATER PUMP INSPECTION**).
12. Install the thermostat housing (A) with a new O-ring (B).

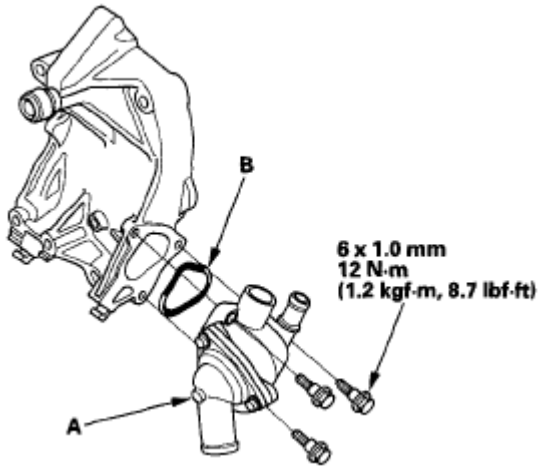

Fig. 16: Identifying Thermostat Housing With New O-Ring (With Torque Specifications)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

13. Clean, and dry the water passage mating surfaces.
14. Apply liquid gasket, P/N 08717-0004,08718-0001, 08718-0002,08718-0003, or 08718-0009, evenly to the engine block mating surface of the water passage.

NOTE: Do not install components if too much time has passed after applying the liquid gasket (for P/N 08718-0002, no more than 4 minutes, for all others, no more than 5 minutes). Instead, remove the old residue and reapply the liquid gasket.

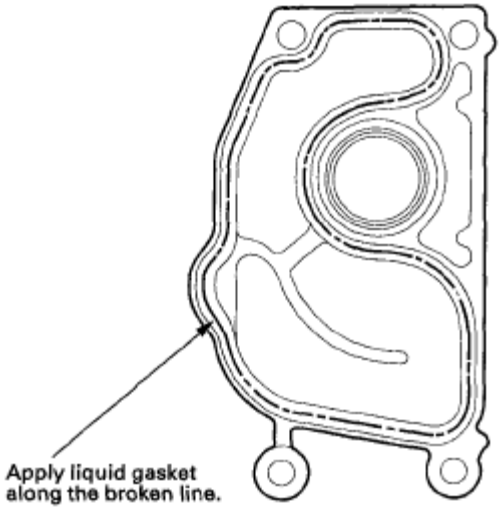

Fig. 17: Identifying Engine Block Mating Surface
Courtesy of AMERICAN HONDA MOTOR CO., INC.

15. Install the water passage (A) with a new O-ring (B).

NOTE:

- **Wait at least 30 minutes to allow liquid gasket to cure before filling the engine with oil.**
- **Do not run the engine for at least 3 hours to allow liquid gasket to cure after installing the water passage.**

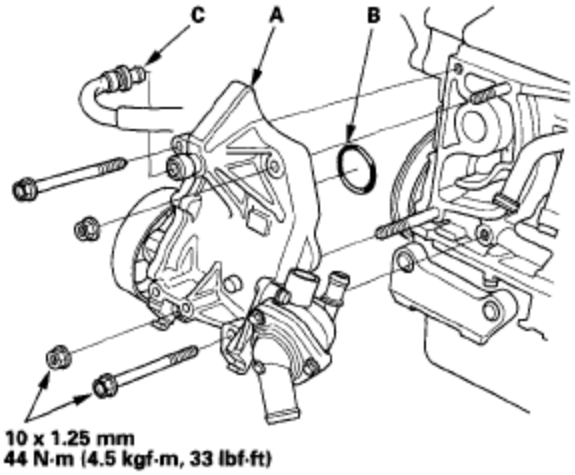

Fig. 18: Identifying Water Passage With New O-Ring (With Torque Specifications)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

16. Install the PCV hose (C).
17. Install the connecting pipe (A) with a new O-ring (B).

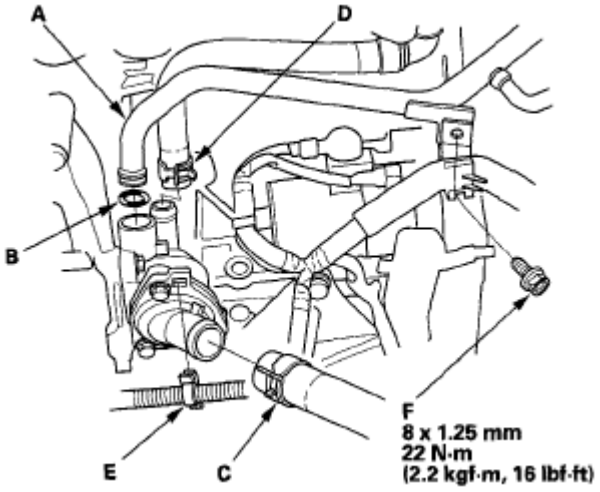

Fig. 19: Identifying Connecting Pipe With New O-Ring (With Torque Specifications)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

18. Install the lower radiator hose (C), water bypass hose (D), and harness clamp (E).
19. Tighten a bolt (F) securing the connecting pipe.

20. Install the intake manifold (see **INSTALLATION**).
21. Install the A/C compressor (see step 24 on **ENGINE INSTALLATION**).
22. Install the condenser fan shroud assembly.
23. Install the alternator (see **INSTALLATION**).
24. Refill the radiator with engine coolant, and bleed the air from the cooling system with the heater valve open (see step 6 on).

WATER OUTLET REMOVAL AND INSTALLATION

REMOVAL

1. Drain the engine coolant (see **COOLANT CHECK**).
2. Remove the air cleaner assembly (see **AIR CLEANER REMOVAL/INSTALLATION**).
3. Remove the harness holder (A) from the bracket, then remove the harness holder bracket (B).

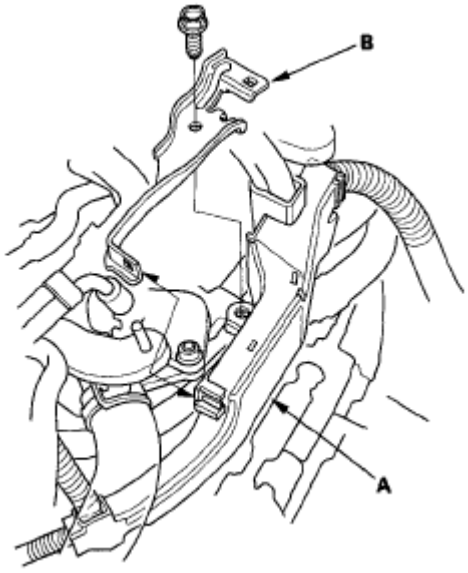

Fig. 20: Identifying Harness Holder Bracket
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Remove the upper radiator hose (A), heater hose (B), and water bypass hose (C).

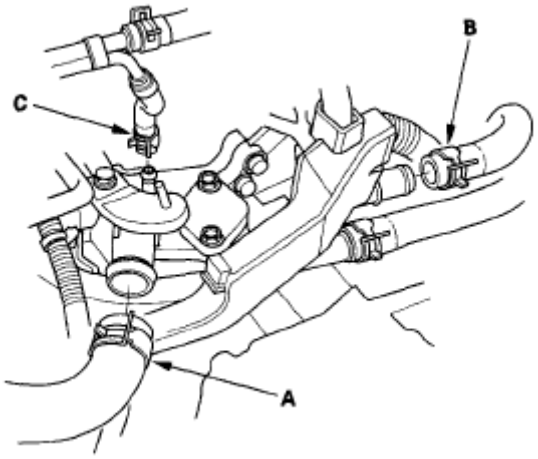

Fig. 21: Identifying Upper Radiator Hose, Heater Hose, And Water Bypass Hose
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Remove the air cleaner housing brackets.

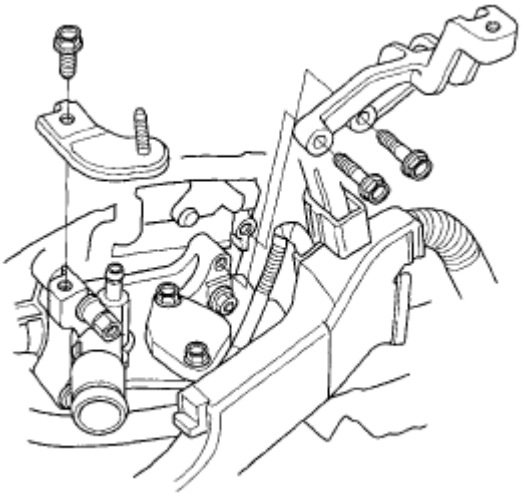

Fig. 22: Identifying Air Cleaner Housing Brackets
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Remove the water outlet.

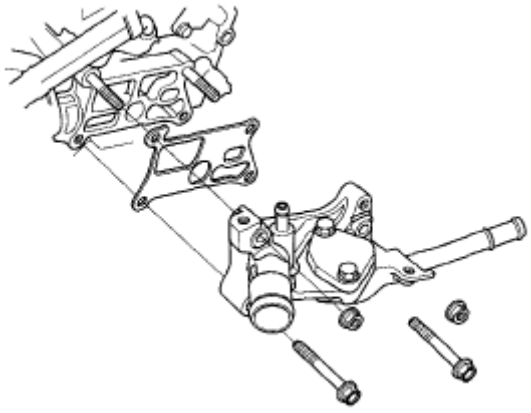

Fig. 23: Identifying Water Outlet
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Remove the EGR plate.

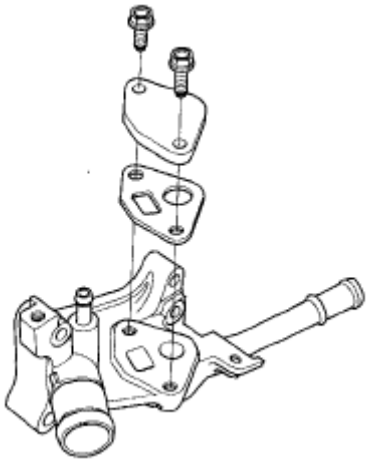

Fig. 24: Identifying EGR Plate
Courtesy of AMERICAN HONDA MOTOR CO., INC.

INSTALLATION

1. Install the EGR plate (A) with a new gasket (B).

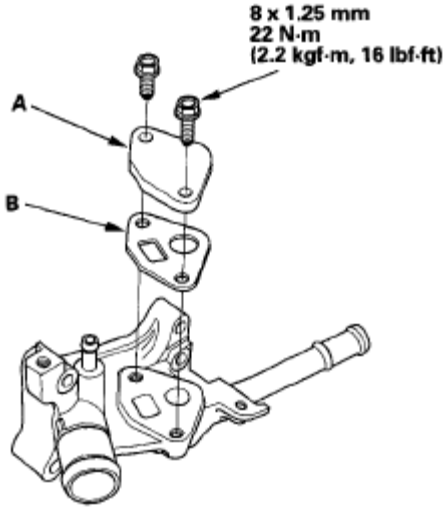

Fig. 25: Identifying EGR Plate With Gasket (With Torque Specifications)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the water outlet (A) with a new gasket (B).

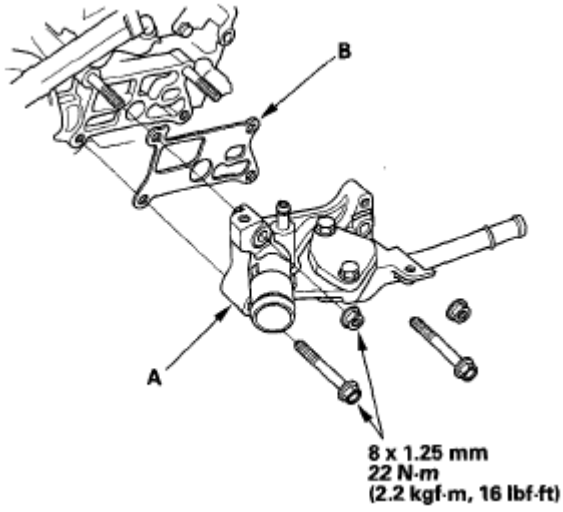

Fig. 26: Identifying Water Outlet With New Gasket (With Torque Specifications)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the air cleaner housing brackets.

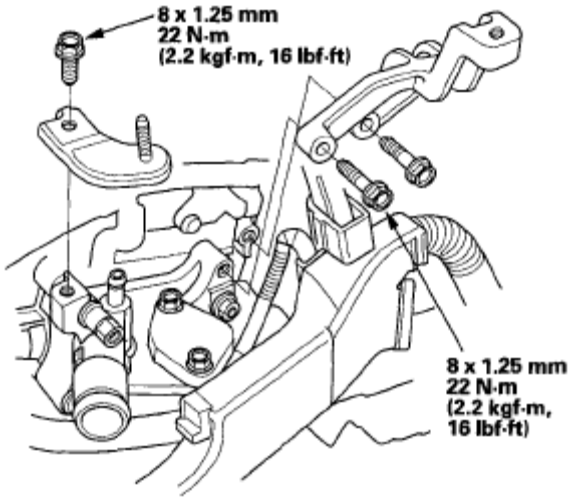

Fig. 27: Identifying Air Cleaner Housing Brackets (With Torque Specifications)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Install the upper radiator hose (A), heater hose (B), and water bypass hose (C).

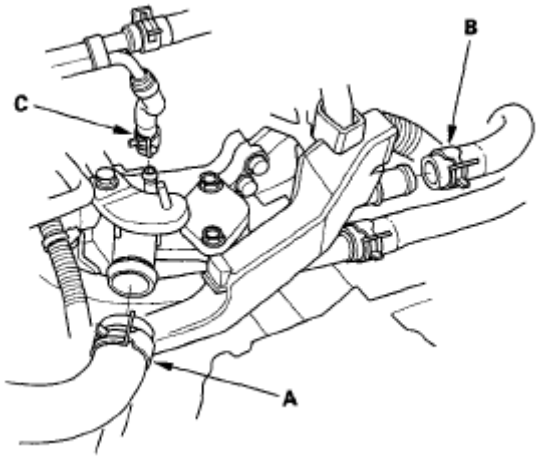

Fig. 28: Identifying Upper Radiator Hose, Heater Hose , And Water Bypass Hose
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Install the harness holder bracket (A), then install the harness holder (B).

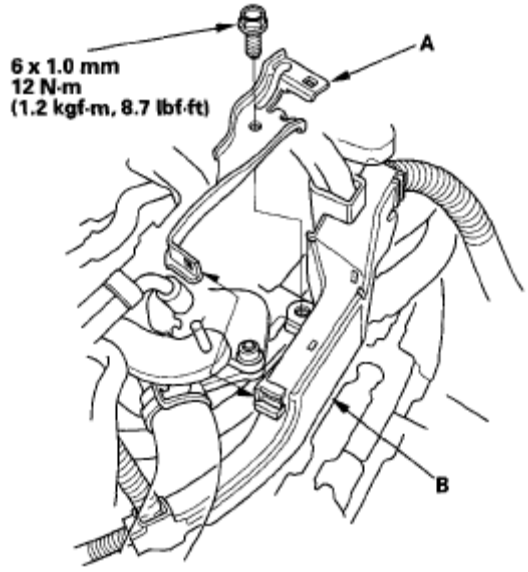

Fig. 29: Identifying Harness Holder Bracket And Harness Holder (With Torque Specifications)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Install the air cleaner assembly (see **AIR CLEANER REMOVAL/INSTALLATION**).
7. Refill the radiator with engine coolant, and bleed the air from the cooling system with the heater valve open (see step 6).

RADIATOR AND FAN REPLACEMENT

1. Make sure you have the anti-theft code for the audio system and the navigation system (if equipped), then write down the audio presets.
2. Disconnect the negative cable from the battery first, then disconnect the positive cable.
3. Remove the battery.
4. Drain the engine coolant (see **COOLANT CHECK**).
5. Remove the bulkhead cover (see **FRONT BUMPER REMOVAL/INSTALLATION**).
6. Disconnect the fan motor connectors (A) and hood switch connector (B), then remove the harness clamps (C).

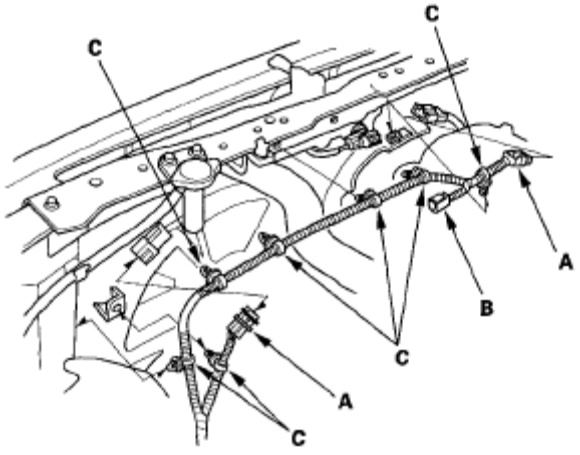

Fig. 30: Identifying Fan Motor Connectors And Hood Switch Connector
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Remove the reservoir hose (A), radiator cap base mounting bolts (B), clips (C), and radiator upper brackets (D).

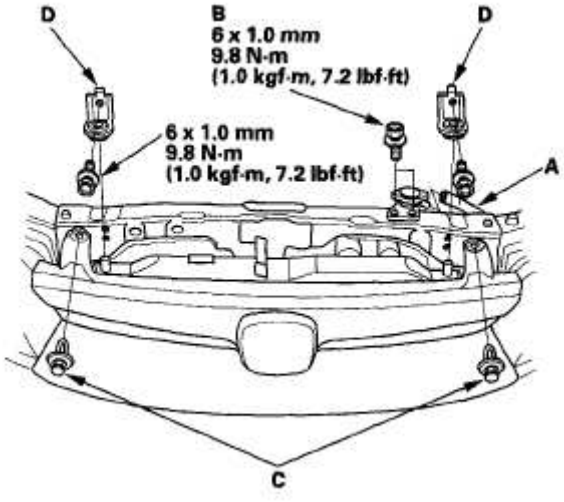

Fig. 31: Identifying Reservoir Hose, Radiator Cap Base Mounting Bolts And Clips (With Torque Specifications)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Remove the upper radiator hose.

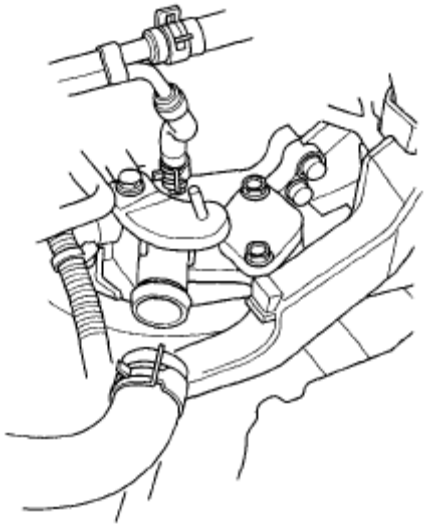

Fig. 32: Identifying Upper Radiator Hose
Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Remove the splash shield.

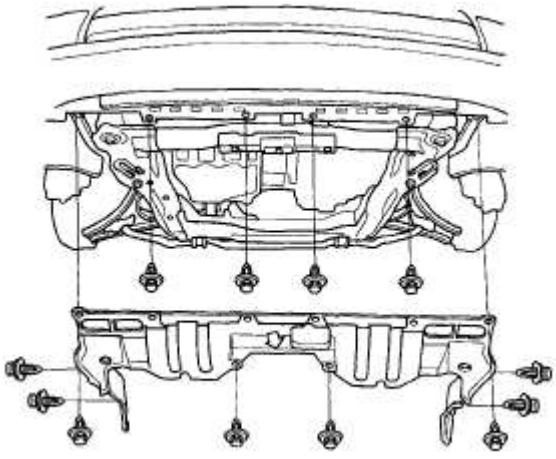

Fig. 33: Identifying Splash Shield
Courtesy of AMERICAN HONDA MOTOR CO., INC.

10. Disconnect the engine coolant temperature (ECT) sensor 2 connector (A), and remove the harness clamp (B).

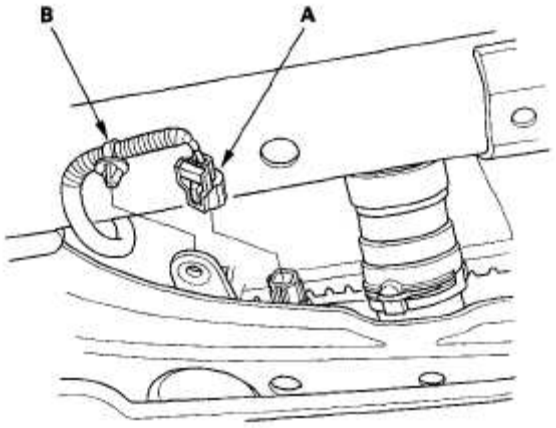

Fig. 34: Identifying Engine Coolant Temperature (ECT) And Harness Clamp
Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Remove the lower radiator hose from the radiator.
12. Remove the condenser bracket mounting bolts (A), then remove the bulkhead (B).

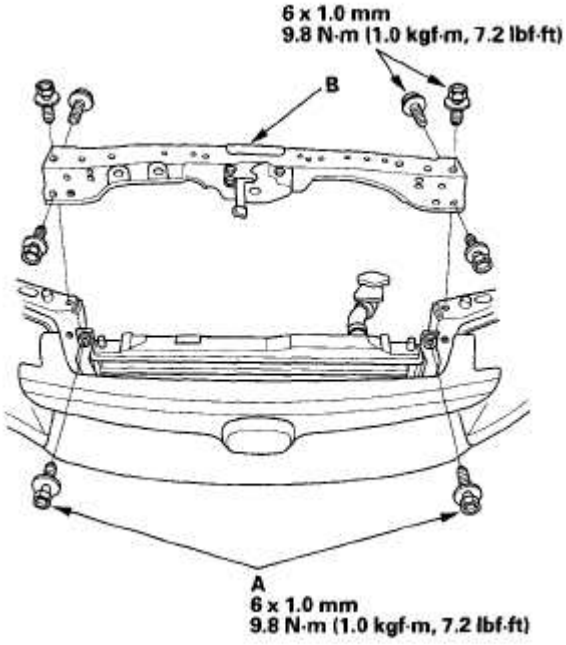

Fig. 35: Identifying Condenser Bracket Mounting Bolts And Bulkhead (With Torque Specifications)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

13. Pull up the radiator, then remove the fan shroud assemblies and other parts from the radiator.

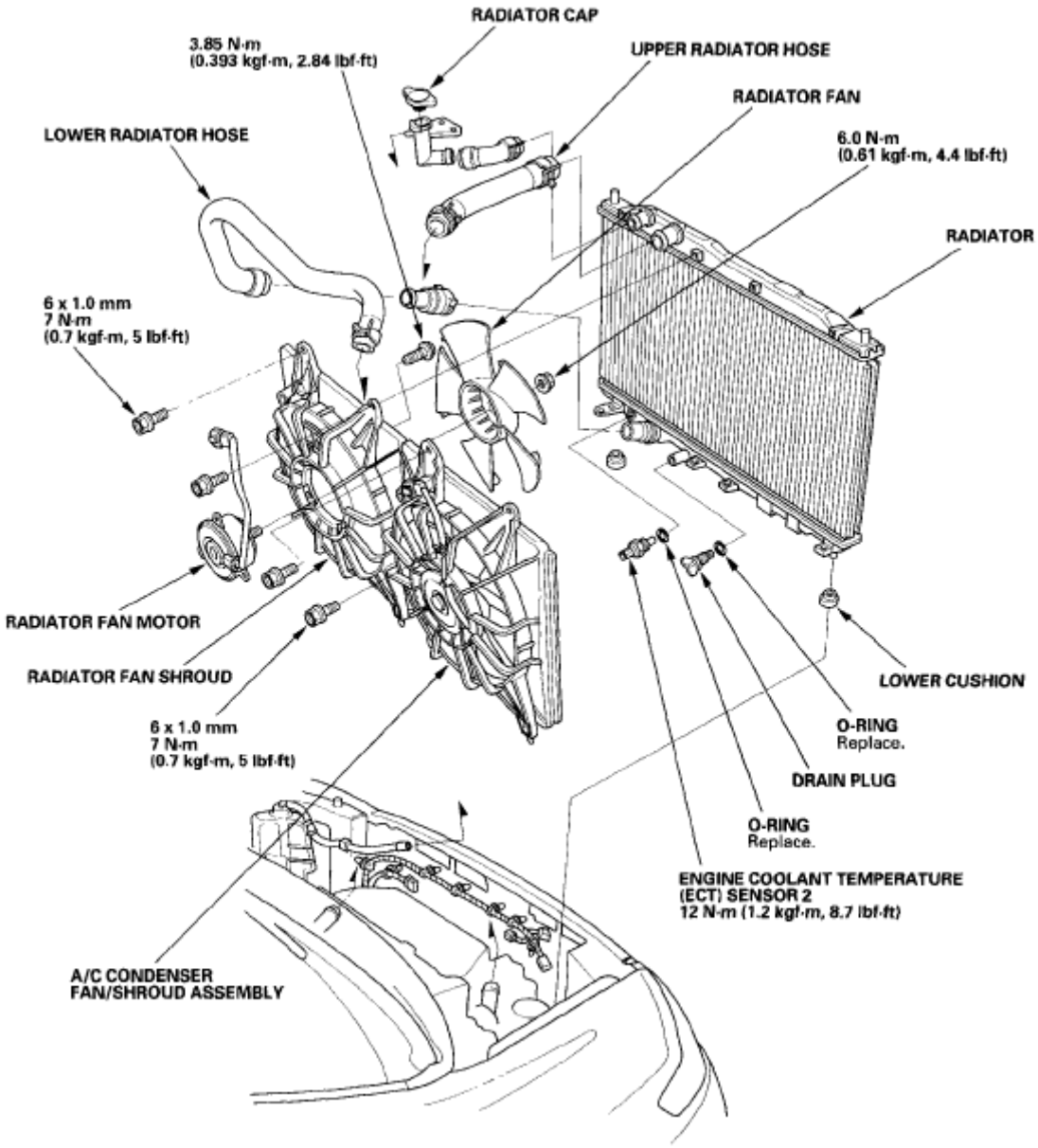

Fig. 36: Identifying Fan Shroud Assemblies And Parts From Radiator (With Torque Specifications)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

14. Install the radiator in the reverse order of removal. Make sure the upper and lower cushions are set securely.

15. Install the bulkhead in the reverse order of removal. Apply body paint to the bulkhead mounting bolts.
16. Install the battery, and connect the positive cable to the battery first, then connect the negative cable.
17. Enter the anti-theft code for the audio system and the navigation system (if equipped), then enter the audio preset. Set the clock.
18. Fill the radiator with engine coolant and bleed the air (see step 6).